Space Weather Forecast

Issued on Thursday, 27 January 2022 at 12:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Slight chance G1/Minor Geomagnetic Storm, mainly day 2 or 3 (28th or 29th). Slight chance R1 Radio Blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low with a low level common class flare from the largest and more complex region on the visible disc, located in the northeast. Another sunspot region closer to the northeast limb has also produced some background flaring.There are three small regions in the northwest, one numbered, two recently emerged and un-numbered. Two regions are located in the southern hemisphere, just west of centre disc, and although generally inactive a filament eruption was observed just to the north on the evening UTC of the 26th. A weak CME was observed and modelled and shows a possible glance around the 30th, but with low confidence. No other Earth-directed CMEs have been observed, however a notable CME was observed in imagery from a far-sided eruption.

Solar Wind / Geomagnetic Activity: The solar wind has fluctuated between slightly elevated and elevated levels. Peak winds occurred on the evening UTC of the 26th and have declined since. The magnetic field has been relatively weak, with the important north-south direction variable and also weak. Geomagnetic activity has been Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain Low, with a slight chance of Moderate flares. There are five numbered sunspot regions on the visible disc, with the two most active regions currently in the northeast.

Solar Wind / Geomagnetic Activity: There is one CME on the Earth-Sun line that has been assessed, but currently expected to pass over Earth around 29/0000 UTC, although a glancing impact cannot be ruled out. A further weak CME may glance Earth on the 30th, but this is low confidence. Waning faster winds from a coronal hole are expected to decline further on day 1 (27th) before the arrival of a further region of fast wind on day 2 (28th). Solar winds are expected to become elevated again, before gradually easing later day 3 and day 4 (29th and 30th). Geomagnetic activity is forecast to Quiet to Unsettled day 1 (28th), increasing to Unsettled to Active with onset of the fast winds of CH47 day 2 (28th) with a slight chance of G1/Minor Storm interval mainly due to any glancing CME impact. Activity then easing to be mainly Quiet to Unsettled by late day 3 and day 4 (29th and 30th), although any further CME glancing influence continues to carry a slight chance of a brief Active or G1 period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	20	10	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	15	15	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.